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# WELL DEVELOPMENTS

No. V Board of Water Well Contractors November 1988

## Everything You Ever Wanted to Know About Water Well Drilling

A recently printed brochure entitled "Water Well Drilling For The Prospective Well Owner" was written to promote understanding between the customer and the water well contractor.

It is intended to answer questions before the well is drilled to avoid problems or confusion that sometimes surface after the well has been drilled.

The brochure provides basic information about the actual construction of water wells, amount of water needed, proper location, (i.e., uphill from the septic system), proper disinfection, water rights filings, and maintenance of the completed well.

Copies of the brochure are available at local County Departments of Health, Department of Natural Resources and Conservation Water Rights Bureau Field Offices, and the Board of Water Well Contractors Office in Helena.

On June 15, 1988, the Board of Water Well Contractors' attorney issued a legal opinion that any domestic well is to be considered a water well, and therefore, a license is required to drill the well. His opinion reads as follows:

> "A license is required to construct all water wells. MCA 37-43-302. Likewise, the Board has been directed to adopt mandatory construction standards for water wells, and has adopted administrative rules to that effect. MCA 37-43-202(3); ARM 36.21.601 through 680. Excluded from these requirements are certain excavations 25' or less in depth:
>
> > The term [water well] does not include spring development or excavations, by backhoe or otherwise, for recovery and use of surface waters or for the purpose of stock watering or irrigation where the depth is 25 feet or less.

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*Start of the Production Well, Hydrology Field Course, Butte, Montana*

## Twenty-Five Foot Exemption on Water Wells

In the October 1987 Well Developments (No. II), an article was printed stating licensure was not required to drill any well which was less than 25 feet in depth.

MCA 37-43-102(6). In my opinion, this exclusion exempts three categories from the Board's jurisdiction:

1) spring development

2) excavations for recovery and use of surface waters, and

3) excavations for stock watering or irrigation where the depth is 25 feet or less.

Clearly, excavations for domestic water, even if less than 25 feet deep, are not excluded unless they are merely spring development or recovery of surface water. It follows that both the licensing requirements and the construction standards apply to these wells."

If you have any questions regarding this opinion, please call the Board of Water Well Contractors office in Helena at (406) 444-6643.

## Recovery Wells

With the inclusion of monitoring wells under the jurisdiction of the Board of Water Well Contractors, the question of jurisdiction over recovery wells has been a topic of discussion lately.

The following legal opinion was issued on July 1, 1988, by the Board of Water Well Contractors' attorney, Jim Madden.

"In my opinion the statutes do not cover recovery wells.

The term 'water well' is defined in pertinent part as follows:

> an excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed and intended for the location, diversion, artificial recharge or acquisition of groundwater.

MCA 37-43-102(6), emphasis added.

The term 'monitoring well' is defined as follows:

> a well that is used for monitoring groundwater quality or flow direction but is not used for withdrawing groundwater for purposes other than water quality sampling or pump testing.

MCA 37-43-102(4), emphasis added.

A recovery well is installed to recover contaminants that have been or may be introduced into the groundwater table. Because the well is not intended to acquire, locate, divert, or recharge groundwater, it is not a 'water well' under MCA 37-43-102(6). Likewise, because a recovery well is not used for monitoring groundwater quality or flow direction, it is not a 'monitoring well' under MCA 37-43-102(4). Because these definitional statutes do not cover recovery wells, neither the Board's licensing requirements nor construction standards attach to recovery wells."

If the Board believes that recovery wells should be regulated because they present a possible source of groundwater contamination, we should seek a legislative amendment to MCA 37-43-102 to include recovery wells.

Absent a legislative change, the Board has no jurisdiction over recovery wells.

If you have any questions regarding this legal opinion, please contact the Board of Water Well Contractor's office in Helena.

## Water Well Contractor Responsibility—Flowing Wells and Dry Holes

A recent inquiry suggests there may be a question as to the water well contractor's responsibility in flowing wells and dry holes.

Board of Water Well Contractors' Rule 36.21.658 requires that when artesian water is encountered in a well, the casing shall be adequately sealed into the confining stratum to prevent surface and subsurface leakage from the artesian zone. The well must be equipped with a control valve if it flows at land surface and must be completed with seals, packers, and neat cement grout to eliminate leakage around the well casing.

The rule also requires that the driller cannot remove his drilling rig from the well site until the leakage has been completely stopped, unless he has obtained approval from the Board of Water Well Contractors for temporary removal.

Section 85-2-505, MCA, also requires all flowing wells to be capped or equipped with valves to stop the flow of water when it is not being put to beneficial use.

Before requesting a release from the Board of Water Well Contractors to remove the rig, it must be made clear to the well owner that the law requires all flowing wells be capped or controlled. It is suggested the water well contractor have the well owner sign a release stating the above information has been fully explained. The reason for removing the rig must be explained.

Dry or inadequate well holes are addressed by rule 36.21.679. This rule requires that water wells which are constructed and do not provide an adequate supply of water shall not be considered completed until the well driller either:

1. Removes the casing and fills the hole with cement, grout, concrete, or bentonite clay grout; or
2. Constructs the well in accordance with minimum well construction standards and welds a 1/4 inch thick steel plate fully covering the top of the casing providing a watertight seal.

A water well log report form must be completed and filed within 60 days after moving the drilling rig from the hole.

If you have any questions about these two items, please contact the Board office in Helena.

## A Summer Well Spent

The Board of Water Well Contractors' Program Specialist, Diana C. Cutler, spent five weeks this summer attending the Hydrogeology Field Course offered by the Montana School of Mineral Science and Technology in Butte, Montana.

The class offered firsthand experience in interpretation of hydrogeological data collected by the students; field interpretation of geologic and hydrogeologic maps and imagery; design and construction of a water well; water well drilling with mud and air; monitoring well design and installation using augering techniques; vadose zone monitoring; collecting and describing cutting samples; laboratory determination of specific yield and hydraulic conductivity; step drawdown

pumping test; long-duration pumping test; recovery test; slug test; data collection from an existing water well observation network; water level measuring and recording; collecting groundwater samples for chemical analysis; field measuring of specific conductance, pH, and selected ions using single-ion electrodes; field study of surface water-groundwater interactions at a superfund site; surface geophysical surveying to determine the extent and depth of an aquifer; running borehole geophysical logs; and visiting research projects.

Some of the instructors for various portions of the course included:

Herb and Dave Potts, of Potts Drilling and Development, who donated their time and equipment for the drilling of a production well;

Dennis Johnson of N.L. Bariod in Roundup, who instructed in the use of drilling fluids, additives, and sealing of the well;

Fred Schmidt and John Sonderegger of the Montana Bureau of Mines and Geology, who demonstrated the use of an auger rig, including the hollowstem, for the drilling of monitoring wells, (John also taught other portions of the course);

Bob Davis, Tom Reed, and Steve Lind, of the U.S. Geological Survey, presented demonstrations of hydrochemical field equipment, borehole geophysical logging, and stream flow gauging;

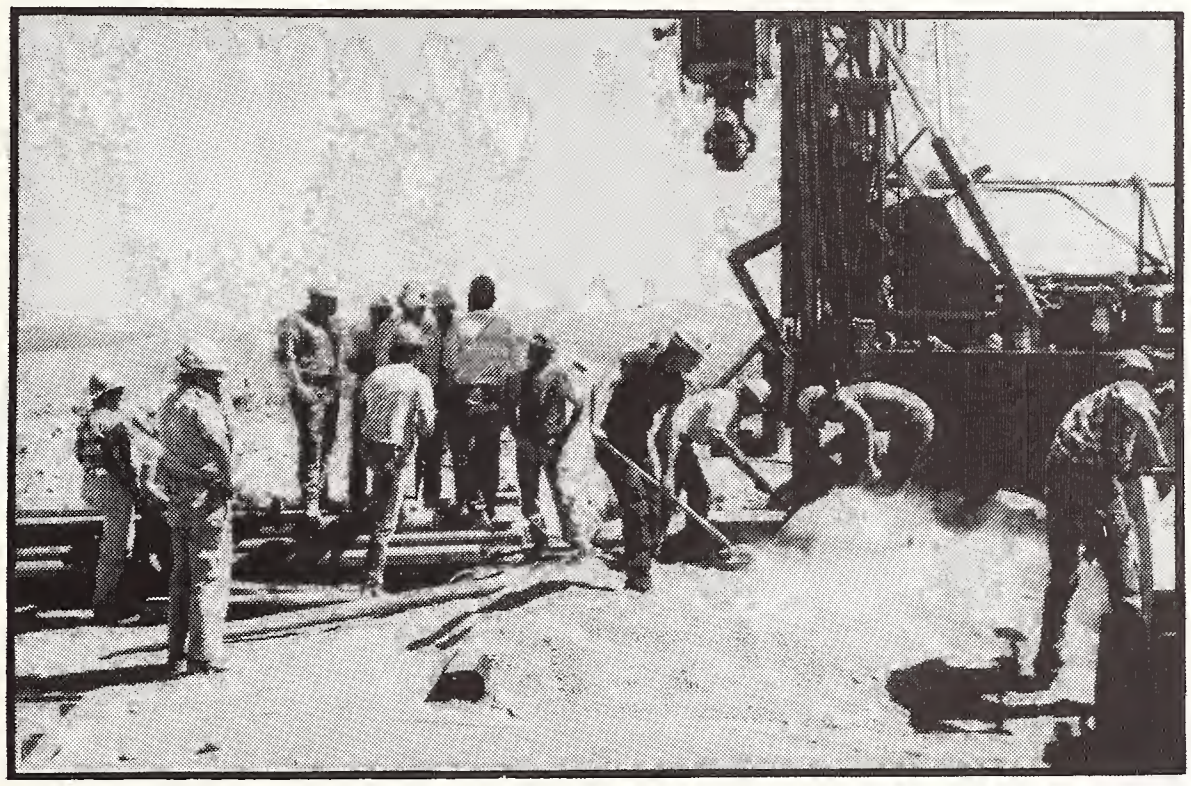
Thomas Osborne and Marek Zaluski, from Michigan and Wisconsin; Paul Querno of Johnsons well screens; Bill Woessner, University of Montana, Missoula; Peter Norbeck, Special Resource Management; and various individuals from the Montana Bureau of Mines and Geology and Montana Tech.

Brian Harrison and Marvin Miller from Montana Tech did an excellent job of coordinating the course.

There were eleven students in the class this year. With report writing, plus the field work, students averaged 10 to 12 hours each day on course work.

The long-term pumping test ran for 24 hours. The Butte Metro Sewage injection site is extremely cold at 5:00 a.m. even in the middle of July! Now we know where the saying "colder than a well driller's — — — in January" came from. If it's that cold in July, one can imagine what January would be like.

Student experience was definitely firsthand, as evidenced by the photos. We were gravel packing the production well.



The course also included a week long field trip. The Three Forks arsenic contamination problem, a gasoline spill at Livingston, saline seep at Rapelje, a research project on the effects of herbicides at Huntley, the Decker coal mine, a demonstration by West Corp of multiple packer measuring devices at Cody, Wyoming, and the hydrogeologic features of a small area of Yellowstone National Park were some of the high points of the field trip.

The field course was an informative learning experience for all involved. Speaking from the standpoint of the Board's program specialist, it was well worth the time and effort involved.

## Board of Water Well Contractors Members

Wayne Van Voast is the hydrogeologist appointed by the Montana Bureau of Mines and Geology to serve on the Board. Wayne is a registered professional geologist in the state of Idaho, and is a member of the American Water Resources Association and the Montana Geological Society. He has served on the Board of Water Well Contractors since 1982.

Wayne was born and raised in Helena, Montana. He has two

sons, Todd, 20, and Brett, 22.

Wayne has a BS degree in earth sciences and an MS degree with a major in geomorpholgy and a minor in soils from Montana State University in Bozeman.

Wayne worked as a geologist for Continental Laboratories in Billings, and as a research assistant for the Department of Earth Sciences at Montana State University, from June 1961 through April 1965. He then spent four months as a geologist for the Highway Department before going to work as a hydrologist for the United States Geological Survey in St. Paul, Minnesota in 1965. In 1969, Wayne accepted a position with the Montana Bureau of Mines and Geology and has worked for the Bureau both in Butte and Billings. He is currently living in Billings and is Branch Office Chief for the Bureau.

Wayne has authored or co-authored more than 35 publications on groundwater availability, regional water resources, and hydrologic aspects of surface coal mining.

He has served on various state and national committees dealing with ground water, including those for scientific exchange with Poland and the USSR. He has also served with the National Academy of Science, compiling a research document on Hydrologic Effects of Mining.

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